AIE-Active Supramolecular Assemblies of TPE-DNA Conjugates

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Opposite to many chromophores that suffer from aggregation-caused quenching (ACQ), aggregation-induced emission (AIE) type chromophores exhibit intense fluorescence and efficient energy transfer in molecular assemblies. That is why aggregation-induced emitters have gained much attention in the fields of optoelectronic devices and the creation of artificial light-harvesting systems among others.[1] Previous work demonstrated light-harvesting in supramolecular vesicles assembled from phenanthrene-DNA conjugates.[2] In this work, the phenanthrenes have been replaced by either *E*-tetraphenylethylenes (TPEs) (Figure 1A) or *Z*-TPEs and resulted in the formation of AIE-active supramolecular assemblies. As evidenced by AFM, duplex **1** self-assembles in aqueous medium into spherical objects (Figure 1B). Similar results are also obtained for *Z*-TPE-modified DNA conjugates. Spectroscopic data as well as physicochemical properties of the supramolecular arrays will be presented and discussed on this poster.

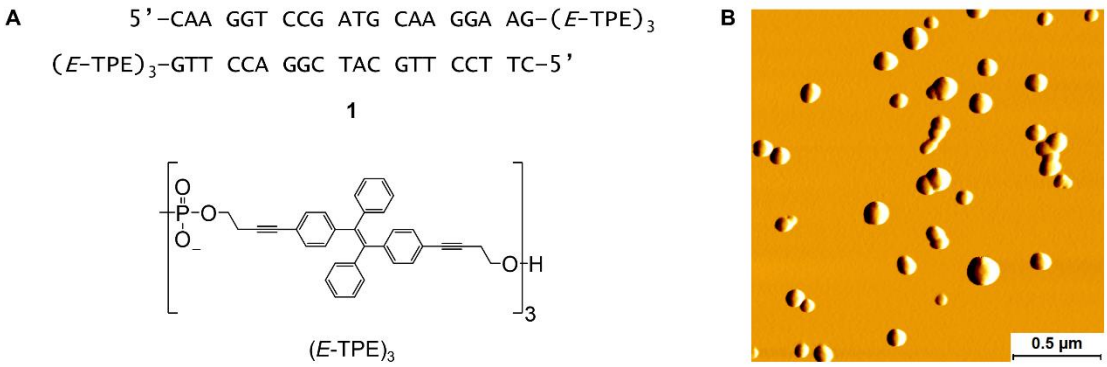

Figure 1. (A) Sequences of *E*-TPE-DNA conjugates. (B) AFM deflection scan of the self-assemblies.

[1] J. Mei, N. L. C. Leung, R. T. K. Kwok, J. W. Y. Lam, B. Z. Tang, *Chem. Rev.*, **2015**, 115, 11718–11940.
[2] C. D. Bösch, J. Jevric, N. Bürki, M. Probst, S. M. Langenegger, R. Häner, *Bioconjugate Chem.*, **2018**, 29, 1505–1509.

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